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Understanding Talent:
How Can We Help?

S&C Solutions to Identifying and Developing Youth Athletes

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Prof. Kevin Till @KTConditioning

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Prof. Kevin Till @KTConditioning

GATESHEAD THUNDER

HUNSLET HAWKS RLFC
'SO WE SHALL AGAIN'

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YORKSHIRE CARNEGIE RUGBY

LEEDS RHINOS

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TALENT

IS A CENTRAL COMPONENT TO COACHING, SPORT SCIENCE & ATHLETE DEVELOPMENT

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Talent ID & Development Systems
Standard
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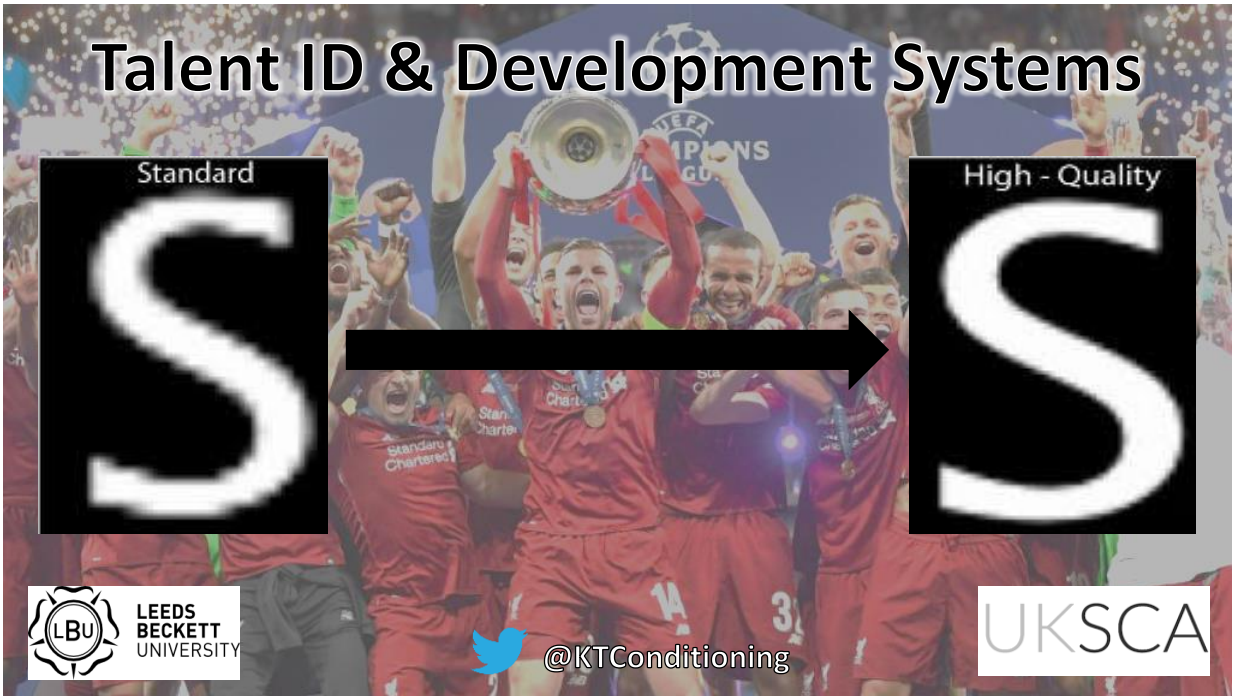

Talent ID & Development Processes

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The **process** of **recognising participants** with the **POTENTIAL** to excel in a particular sport

Identification

Development

Providing the most **suitable learning environment** for athletes to realise their **potential** or **accelerate** their development

Detection

Transfer

The **discovery** of **potential performers** who are NOT currently involved in a sport in question

Transfer and **fast-tracking** of **talented individuals** from one sport to another sport where there are opportunities to succeed

Selection

The **selection** of **players** at various stages who demonstrate **prerequisite standards of performance** for **inclusion** in a particular team or squad

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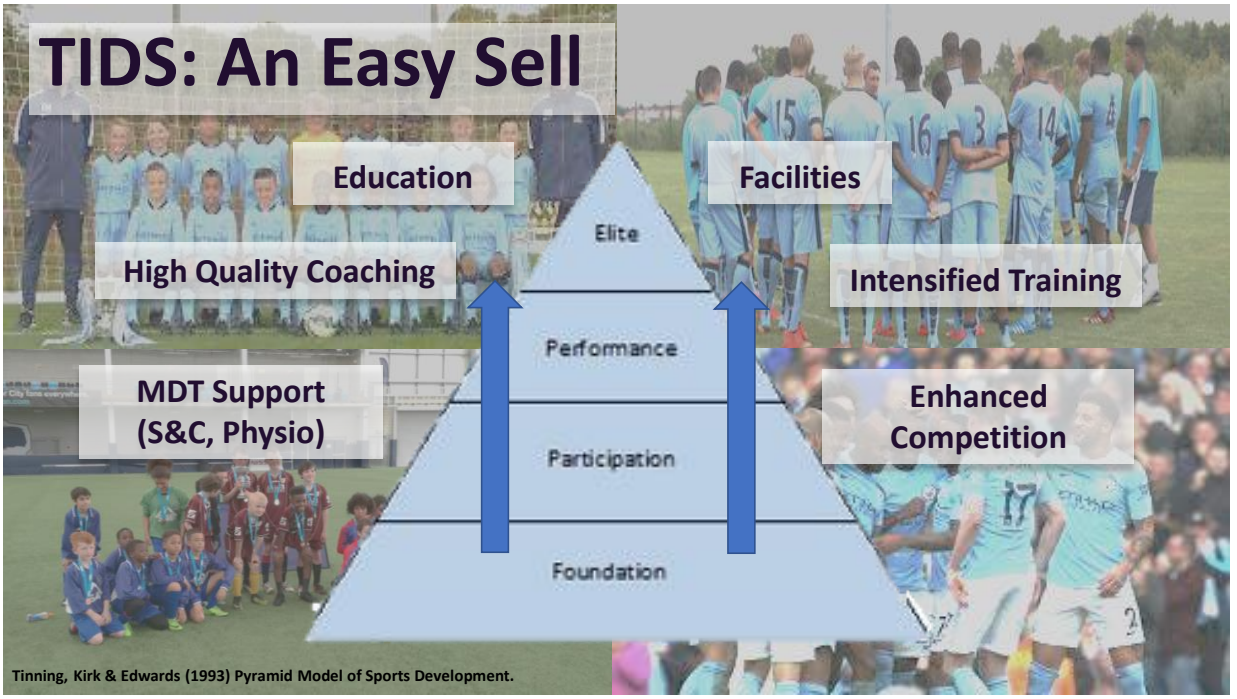
Williams, A.M. & Reilly, T. (2000) Talent identification and development in soccer. *J Sports Sci*, 18, 657-667.
MacNamara Á and Collins D. (2015) Second chances: investigating athletes' experiences of talent transfer. *PloS one* 10: e0143592.



But… Resource Optimization

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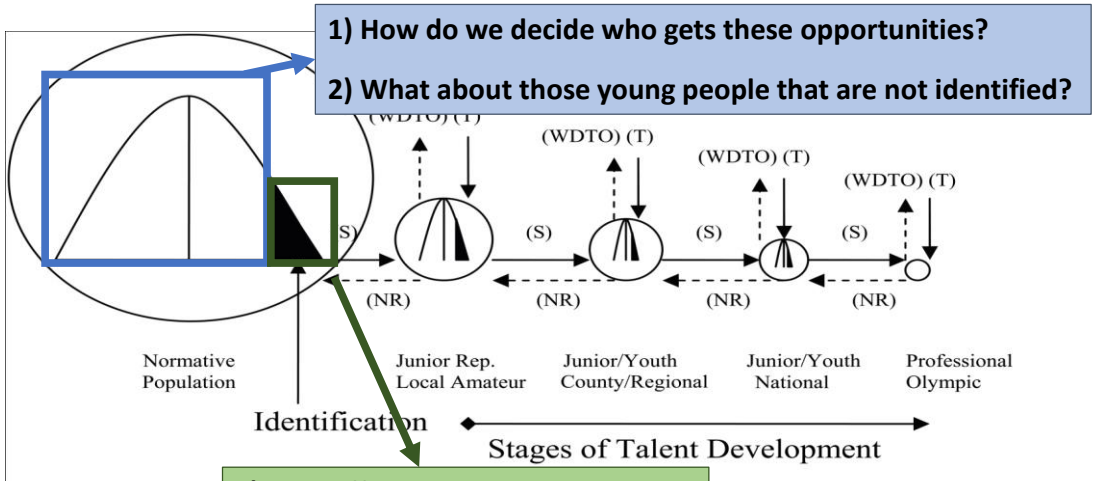

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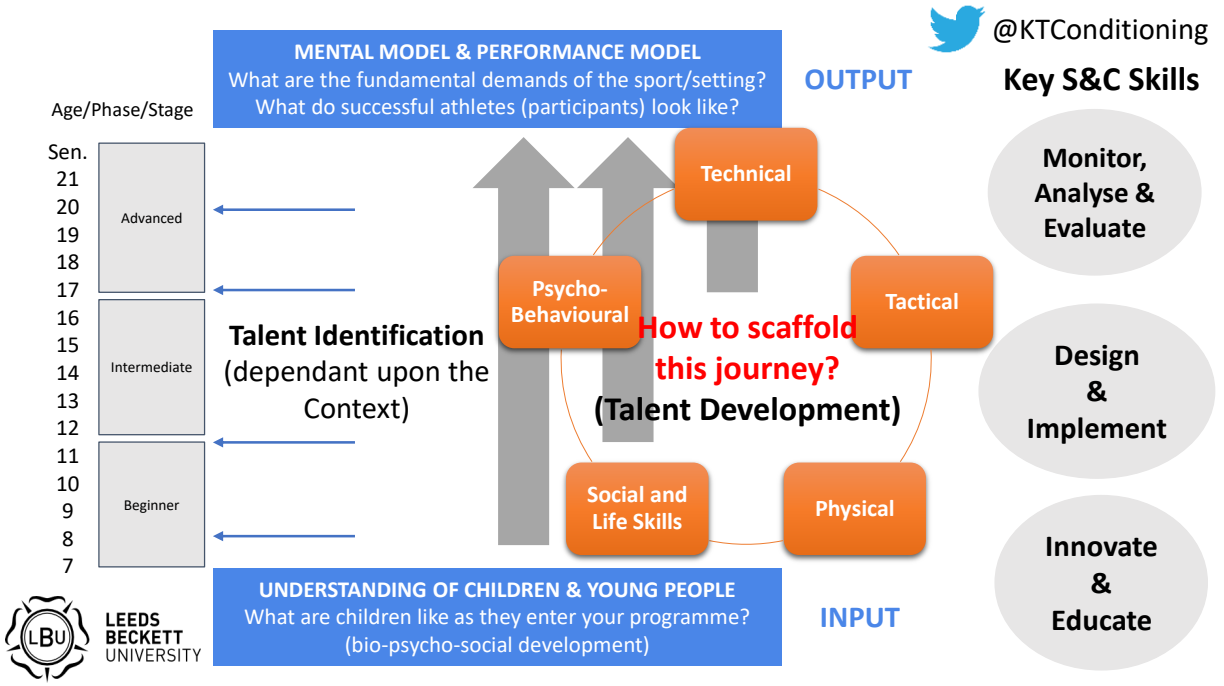

Youth Athletes =

Numerous Physiological, Psychological and Social Factors that Impact upon Understanding, Identifying and Developing Talent

= Challenges

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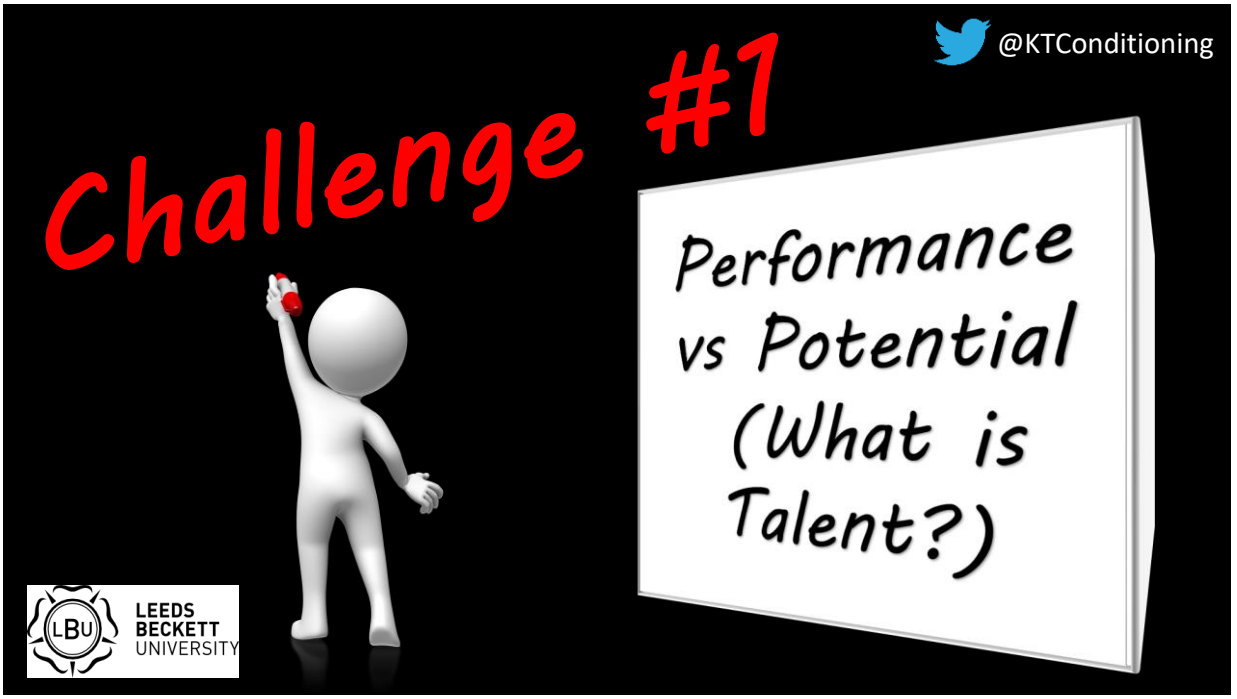

- Multiple Characteristics & Environmental Factors
- Physical Factors showed the highest form of evidence (study design, consistency & directness of evidence) for elite performance

Rees et al. (2016) The great British medalists project: a review of current knowledge on the development of the world's best sporting talent. *Sports Medicine* 46: 1041-1058, 2016.

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- It's Complex!
- Cross-sectional Studies
- No Technical / Tactical Performance
- Limited utility due to a lack of valid and reliable measures for practitioners and researchers

BUT...

Rees et al. (2016) The great British medalists project: a review of current knowledge on the development of the world's best sporting talent. *Sports Medicine* 46: 1041-1058, 2016.

'The presence or absence of particular skills or qualities identified at **earlier time points** that correlate to expert future performance' (Cobley et al., 2012)

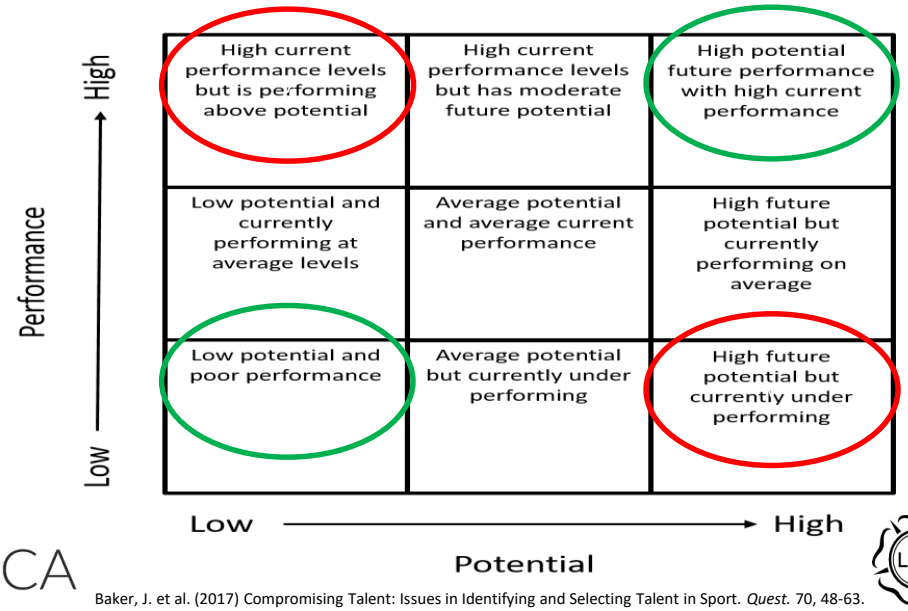
'Potential for success at some **future level** of competition (e.g., adult success)' (Baker & Wattie, 2018)

TALENT

Most Studies Assess Current Performance NOT Potential

But What Is Potential? It's Difficult! Limited Valid Measures Of Potential

Performance vs. Potential



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Baker, J. et al. (2017) Compromising Talent: Issues in Identifying and Selecting Talent in Sport. *Quest.* 70, 48-63.

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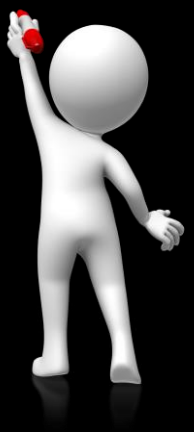
Challenge #2



Talent & Physical Development is Non-Linear

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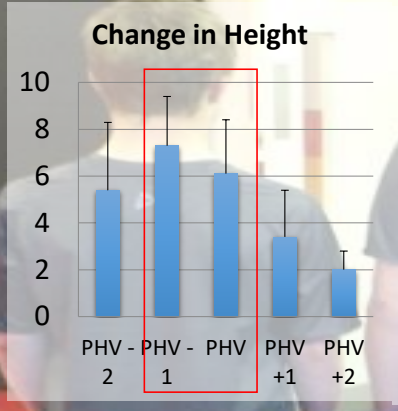
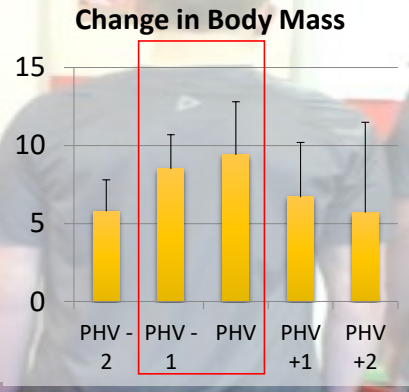
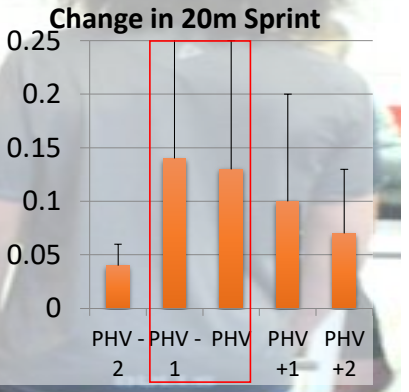
Maturation – Annual Changes







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Till, K. & Jones, B. (2015) Monitoring anthropometry and fitness using maturity groups within youth rugby league. *J Str Cond Res.* 29(3), 730-36.

Physical Changes in RL Academy

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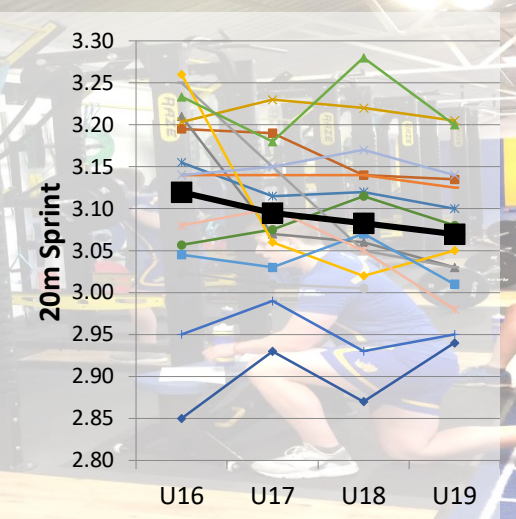
Table 4. Mean, *SD*, range, and CV of the percentage change of anthropometric and physical characteristics between Under 16 and Under 19 annual-age categories.*

	U16–U19% change	CV (%)
Height (%)	1.6 ± 0.7 (0.5 to 3.4)	45.0
Body mass (%)	12.8 ± 7.2 (1.3 to 26.1)	56.2
Sum of 4 skinfolds (%)	−0.9 ± 23.2 (−34.6 to 48.0)	2700.2
10 m (%)	−1.4 ± 2.7 (−6.3 to −2.4)	189.4
20 m (%)	−1.7 ± 2.9 (−6.8 to −3.2)	164.5
10-m momentum (%)	14.7 ± 6.7 (5.3 to 24.3)	45.7
Yo-Yo IRTL1 (%)	46.8 ± 66.7 (−27.0 to 172.3)	142.5
Vertical jump (%)	19.9 ± 10.4 (5.1 to 46.0)	52.2
1RM bench press (%)	50.0 ± 21.4 (27.3 to 98.2)	42.9
Relative bench press (%)	32.2 ± 16.1 (7.2 to 66.6)	49.9
1RM squat (%)	41.2 ± 22.2 (9.8 to 88.9)	53.9
Relative squat (%)	24.8 ± 18.9 (8.9 to 59.1)	56.2
1RM prone row (%)	40.0 ± 10.6 (23.9 to 66.7)	27.8
Relative prone row (%)	22.2 ± 11.5 (1.1 to 45.1)	52.0

*CV = coefficient of variation.



Till, K., et al. (2015) The longitudinal development of anthropometric and physical characteristics in academy rugby league players. *J Str Condi Res.* 29(6), 1713-1722.

Retrospective & Longitudinal Tracking

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Talent Identification → **Predict Potential** → Elite Performance

Studies compare ID vs non-ID within youth

This type of methodology assumes that important characteristics of future success can be extrapolated from individuals' performance at one given point in time

But it may be more important to understand how performance develops = Longitudinal

Or it may be more important to understand who makes it and what they're performance was

Talent Identification ⇄ Elite Performance

Johnston et al. (2017). Talent Identification in Sport: A Systematic Review. *Sports Medicine*: 1-13

Anthropometric, Speed & Endurance Characteristics: Influence on Pro Contract?

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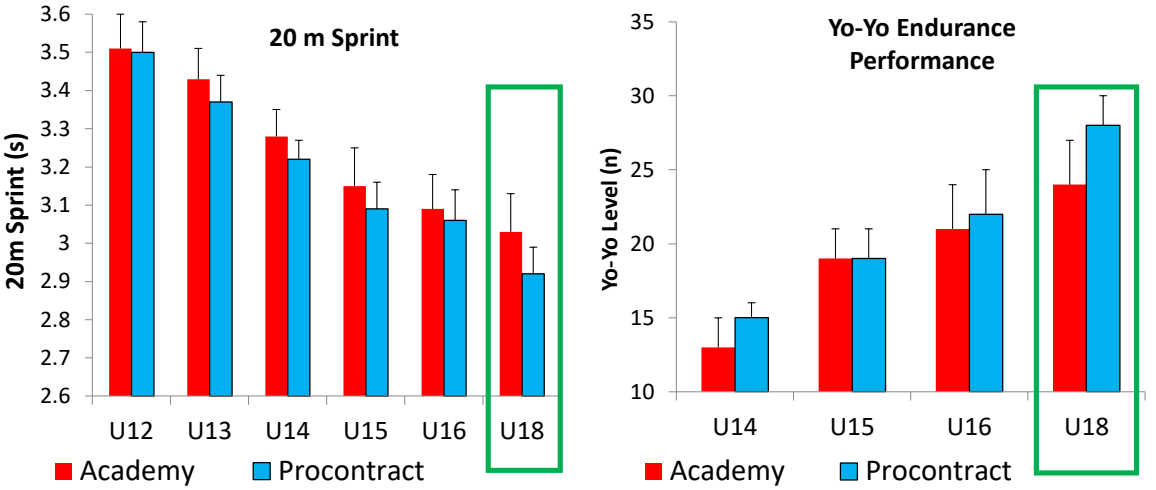
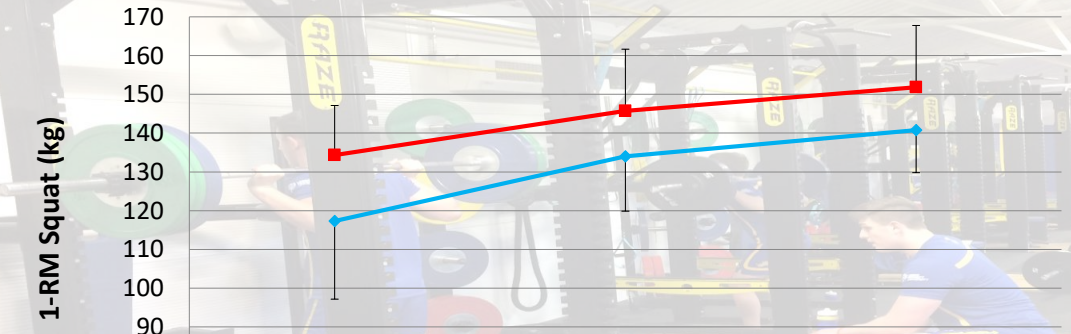


Emmonds, S., et al. (2016) Anthropo, speed and endurance characteristics of English academy soccer players: Do they influence obtaining a professional contract at 18 years of age? *Int J Sports Sci Coach,* 11(2), 212-218.

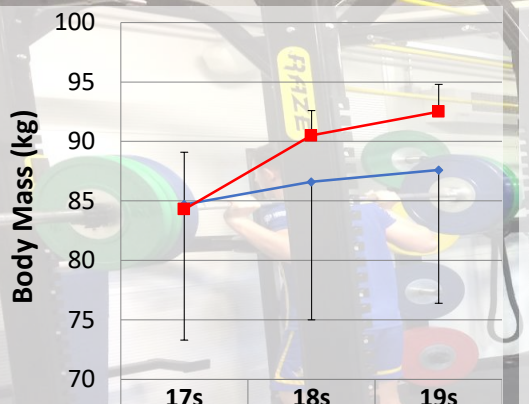
Rugby League Career Success = Squat!



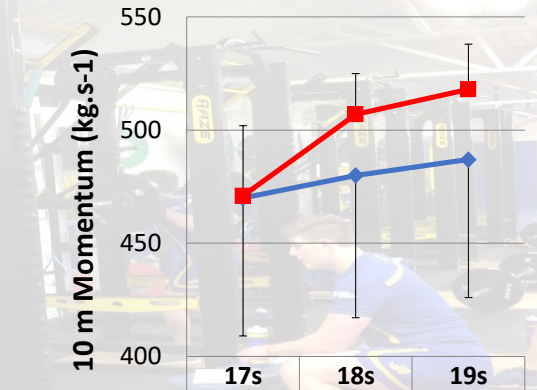
	U17s	U18s	U19s
Academy	117.3	134	140.8
Professional	134.3	145.7	151.8

Till K, et al.. (2016) Do physical qualities influence the attainment of professional status within elite 16-19 year old rugby league players? *J Sci Med Sport.19, 585-589.*

RL Career Success = Mass & Momentum



	17s	18s	19s
Academy	84.7	86.6	87.6
Professional	84.3	90.5	92.5



	17s	18s	19s
Academy	470	480	487
Professional	471	507	518

Till K, et al.. (2016) Do physical qualities influence the attainment of professional status within elite 16-19 year old rugby league players? *J Sci Med Sport.19, 585-589.*

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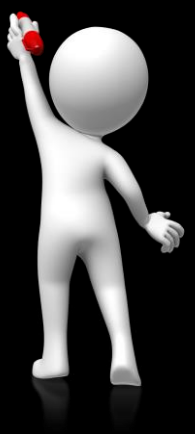
Challenge #3



Annual-Age Grouping & Maturity Variability

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What does this mean for Youth Sports?

Chronological Annual Age Grouping

+

Individual variation in biological maturity

+

Relationship between maturation and performance

=

Children and adolescents may be (dis)advantaged within Talent ID in Youth Sport

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	Player 1	Player 2
Position	Fullback	Backrow
Height	176.9	183.5
Siting Height (cm)	84.8	91.1
Body Mass	61.1	93.6
Age	15.2	15.6
Leg Length	92.1	92.4
YPHV	0.6	2.1
APHV	14.6	13.5
DXA Lean Mass	49.0	64.7
DXA Fat %	12.4	26.3
10m	1.71	1.78
10m Mom	357	526
20m	2.96	3.11
30m	4.20	4.32
40m	5.36	5.52
Ag 505 R	2.28	2.47
Ag 505 L	2.27	2.49
30-15	21.0	18.0
Squat	60	100
Prone Row	60	85
Bench Press	55	90
Chins	19	8
MTP Peak Force (N)	2151	2679
Rel Peak Force (N.Kg)	35.2	28.6
CMJ Height	36.3	33.4

CMJ Heig
Chi
Bench Pre
Prone Rc
Squ
30-
Ag 505
40
20
10m Mc
10
DXA Fat
DXA Lean Ma

Enhancing the Evaluation and Interpretation of Fitness Testing Data Within Youth Athletes

Kevin Till, PhD,[1,2,3] Rhys Morris, MSc,[1] Stacey Emmonds, PhD,[1] Ben Jones, PhD,[1,2,3,4] and Stephen Cobley, PhD[5]
[1]Institute for Sport, Physical Activity and Leisure, Leeds Beckett University, Leeds, United Kingdom; [2]Leeds Rhinos RLFC, Leeds, United Kingdom; [3]Yorkshire Carnegie RUFC, Leeds, United Kingdom; [4]Rugby Football League, Leeds, United Kingdom; and [5]Exercise & Sport Science, Faculty of Health Sciences, University of Sydney, Sydney, Australia

ABSTRACT

FITNESS TESTING IS COMMON PRACTICE WITHIN YOUTH ATHLETES. HOWEVER, THE INTERPRETATION OF FITNESS DATA OFTEN OCCURS WITHIN CHRONOLOGICAL ANNUAL-AGE CATEGORIES, RESULTING IN ATHLETES BEING (DIS)ADVANTAGED DUE TO AGE OR MATURITY DISCREPANCIES. INSTEAD, EVALUATING FITNESS PERFORMANCE AGAINST ROLLING AVERAGES MAY BE MORE APPROPRIATE. THIS ARTICLE PRESENTS A NOVEL METHOD FOR ANALYZING FITNESS TESTING DATA IN YOUTH ATHLETES USING Z-SCORES ACCORDING TO ROLLING AVERAGES FOR BOTH CHRONOLOGICAL AGE AND MATURITY STATUS. THIS ANALYSIS TECHNIQUE ALLOWS FOR THE DUAL ABILITY TO INTERPRET YOUTH FITNESS PERFORMANCE ACCORDING TO AGE AND MATURATION, ENHANCING ACCURACY OF DATA INTERPRETATION FOR TALENT IDENTIFICATION, DEVELOPMENT, AND

STRENGTH AND CONDITIONING PROGRAMMING.

INTRODUCTION

Fitness testing of youth athletes is common practice, whether within schools (18) or in sport academy programs (8,23). Sport scientists and strength and conditioning professionals implement a range of fitness tests to assess the anthropometric (eg, height and mass) and fitness (eg, speed, strength, and power) qualities of youth athletes. The purpose and use of such measurement and assessment is to determine the fitness characteristics of an athlete (58), evaluate an athlete's strengths and weaknesses (15,21), provide objective data for talent identification and development (20,28), and evaluate the effectiveness of training interventions (3).

There are a range of studies across multiple sports that have assessed the anthropometric and fitness qualities of youth athletes (e.g, basketball (29), gymnastics (19), and tennis (7)). However, a challenge for practitioners is to be able to accurately interpret such data to provide meaningful information to inform their practices (eg., evaluating an athlete's needs). Recently, several articles (2,9,14,21,26,27) have recommended analysis techniques to more accurately interpret such data. Collectively, these studies suggest the implementation of Z-scores to interpret an individual's testing and performance assessment. The advantage of Z-scores is that they provide an estimate on a given measurement relative to others who performed the same test. In other words, they provide a score relative to the mean and SD of a data set. Z-scores on multiple parameters permit the ability to identify general or specific strengths and weaknesses related to an individual profile.

A Z-score is calculated as:

$$Z\text{-score} = \frac{(\text{athletes score} - \text{mean score})}{\text{SD}}$$

When interpreting a Z-score, a score of 0 on a given measure (eg, agility, speed) represents a score reflecting the mean of the broader group. Therefore, the athlete would be performing on average with the comparison group. An athlete with a Z-score of plus or minus 1 reflects a score 1 SD above or below the mean, respectively (2,21), containing 68% of the group comparative scores. Meanwhile, a Z-score of 2.2 represents a score of 2 SDs above or

KEY WORDS:
anthropometric; fitness; youth; adolescent; maturity; strength and conditioning

Address correspondence to Dr. Kevin Till, K.Till@leedsbeckett.ac.uk.

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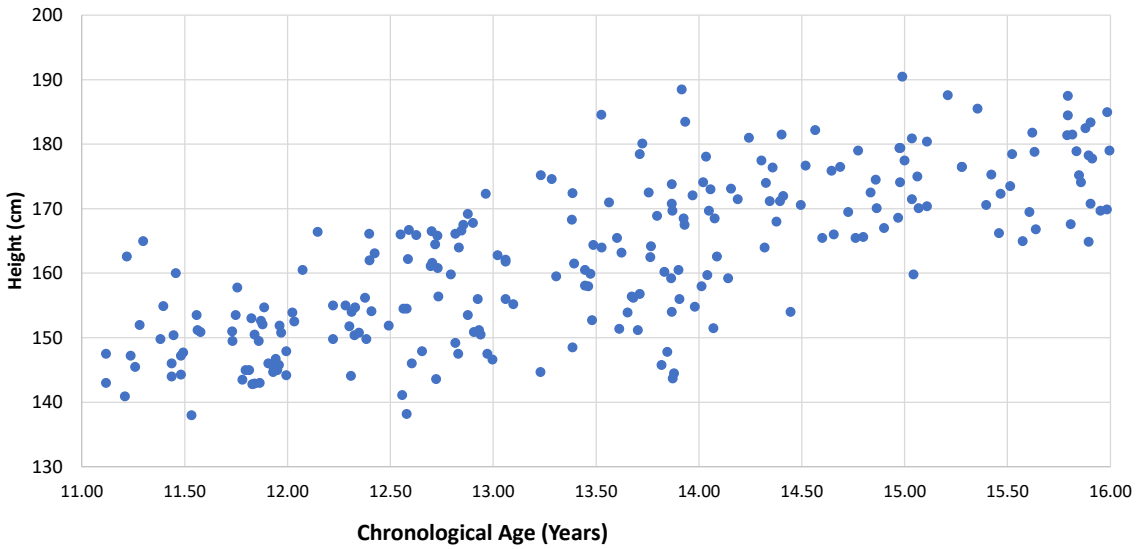
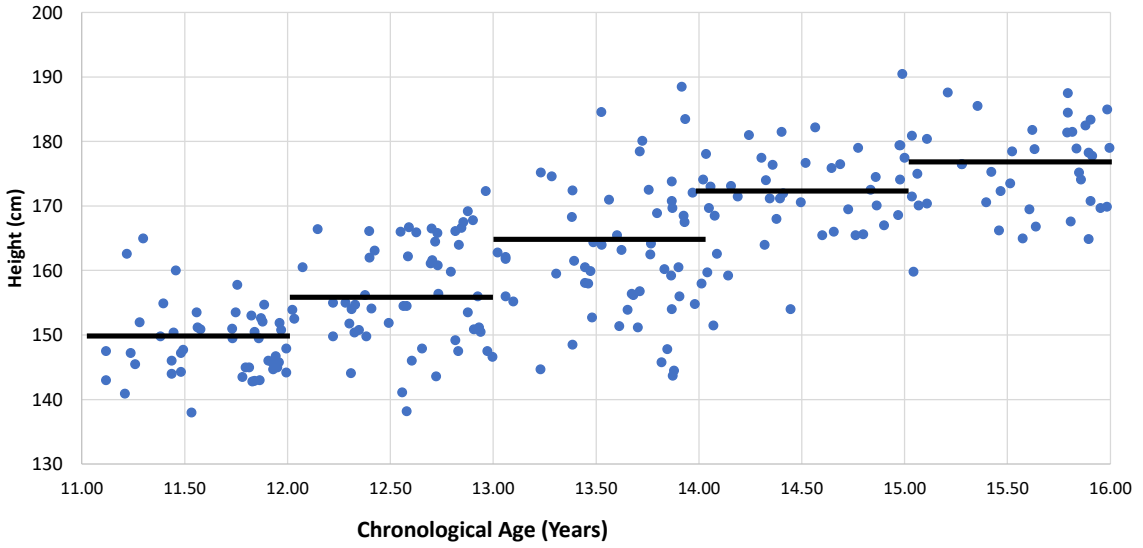
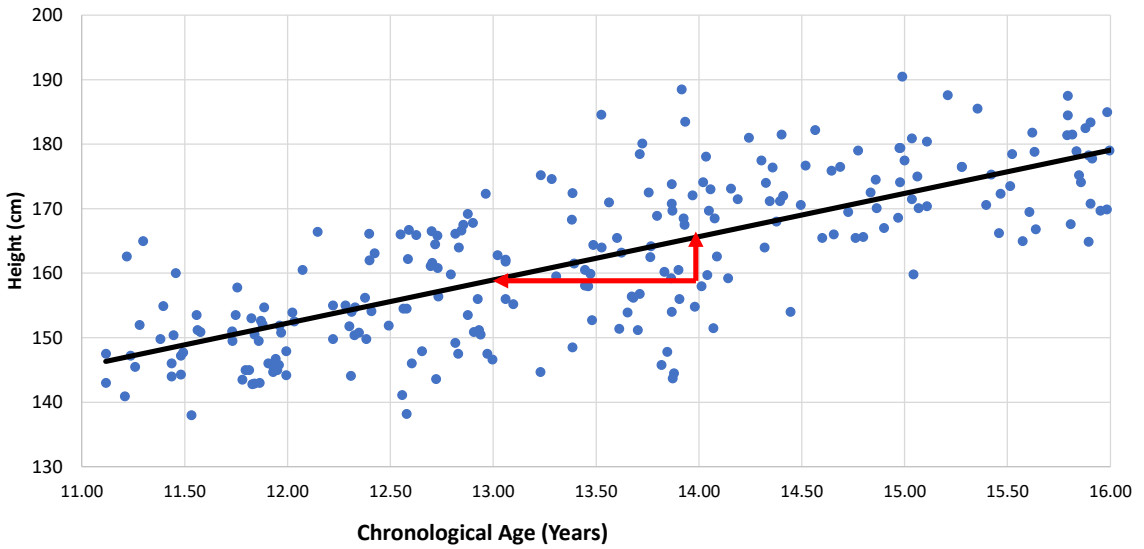
Evaluating by Age & Maturity – 'Rolling Averages'



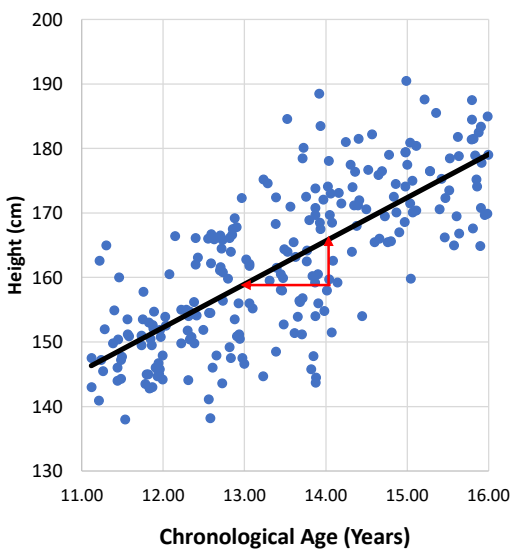
Evaluating by Age & Maturity – 'Rolling Averages'

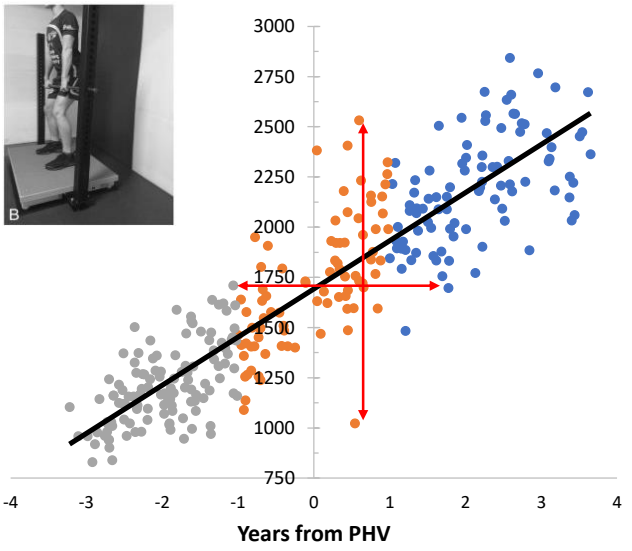


Evaluating by Age & Maturity – 'Rolling Averages'



Evaluating by Age & Maturity – 'Rolling Averages'





Z-Scores by Age & Maturity – 'Rolling Averages'

	Chronological Age	
Height	(6.70 x Age) + 71.8	
Body Mass	(6.84 x Age) – 40.5	
10 m	(-0.072 x Age) + 2.90	
30 m	(-0.21 x Age) + 7.52	
Arrowhead Agility	(-0.23 x Age) + 11.9	
CMJ Impulse	(21.5 x Age) – 162.2	
CMJ Jump Height	(0.02 x Age) - 0.03	
IMTP Peak Force	(223.0 x Age) - 1544	
IMTP Relative Peak Force	(0.43 x Age) + 23.7	

Z-Scores by Age & Maturity – 'Rolling Averages'

	Chronological Age	Maturity Offset
Height	(6.70 x Age) + 71.8	(7.51 x YPHV) + 167.4
Body Mass	(6.84 x Age) – 40.5	(7.63 x YPHV) + 56.9
10 m	(-0.072 x Age) + 2.90	(-0.066 x YPHV) + 1.89
30 m	(-0.21 x Age) + 7.52	(-0.19 x YPHV) + 4.62
Arrowhead Agility	(-0.23 x Age) + 11.9	(-0.20 x YPHV) + 8.68
CMJ Impulse	(21.5 x Age) – 162.2	(23.4 x YPHV) + 143.9
CMJ Jump Height	(0.02 x Age) - 0.03	(0.02 x YPHV) + 0.3
IMTP Peak Force	(223.0 x Age) - 1544	(249.0 x YPHV) + 1702
IMTP Relative Peak Force	(0.43 x Age) + 23.7	(0.41 x YPHV) + 29.8

Z-score = (athletes score – average score) / standard deviation

Replace average score by the regression equation

E.g., Z-Score for Chronological Age = (athlete score – **(6.70 x Age) + 71.8)**) / 7.7

Interpreting and Evaluating Scores

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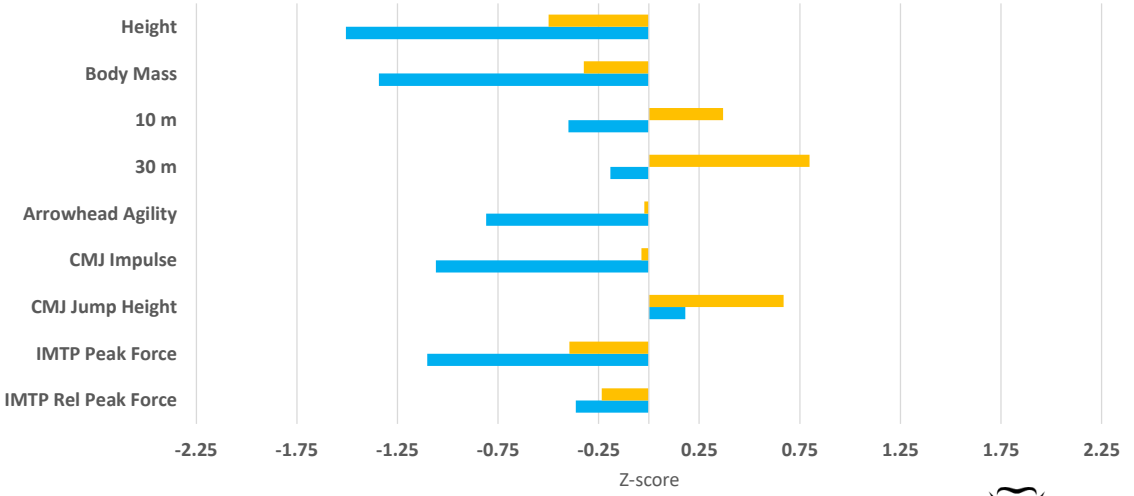

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Interpreting and Evaluating Scores

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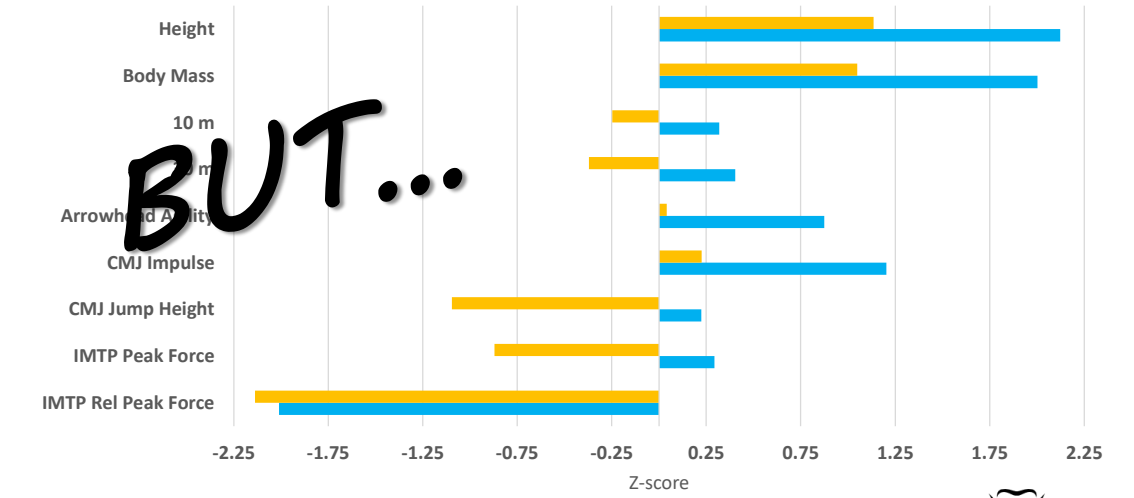

BUT...

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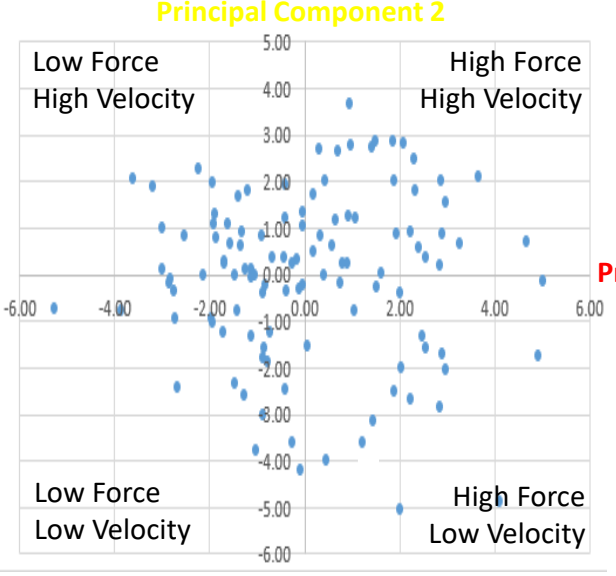
Principal Component Analysis

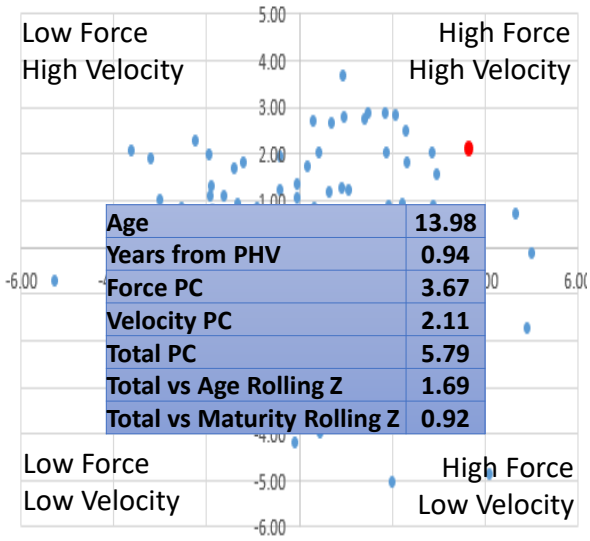
Position	Test Date	DoB	Height (cr	Siting Height	Weight (l	Age (y	Leg Length (cm)	Year from PHV	Age at PH	Vertical Jum	VJ I	Mid Thigh Pull	Relative Mid Thigh Pu	10	10m Mo	505 Lef	505 Rig	Ag5	Ag 1
2nd Row	01/05/2019	8/10/2005	173	91.6	75.7	12.9	81.4	0.58	14.56	30.0	3195	126.5	1.67	1.82	416	2.45	2.44	2.45	0.63
2nd Row	01/05/2019	26/06/2005	159	77.7	51.7	13.4	81.3	-1.07	14.56	30.8	2157	76.5	1.48	1.93	268	2.75	2.75	2.75	0.82
Winger	01/05/2019	13/05/2005	160.2	80.4	48.7	13.9	79.8	-0.59	14.56	28.4	1875	82.5	1.69	1.96	248	2.41	2.52	2.47	0.51
Hooker	01/05/2019	04/04/2005	160	76.4	49.9	13.5	83.6	-1.23	14.56	33.4	2233	96.5	1.93	1.91	261	2.54	2.44	2.49	0.58
winger	01/05/2019	08/03/2005	170.4	88.5	62.3	14.0	81.9	0.59	14.56	35.5	2922	106.0	1.70	1.8	346	2.28	2.35	2.32	0.52
Centre	01/05/2019	02/02/2005	168	86	63.6	13.8	82	0.24	14.56	30.3	2665	111.5	1.75	1.91	333	2.63	2.62	2.63	0.72
Hooker	01/05/2019	31/01/2005	152	77.5	49.6	13.7	74.5	-0.96	14.56	30.6	2049	88.0	1.77	1.87	265	2.39	2.39	2.39	0.52
Fullback	01/05/2019	18/12/2004	172.5	83.6	54.7	13.9	88.9	-0.14	14.56	30.9	2299	94.5	1.73	1.83	299	2.46	2.38	2.42	0.59
2nd Row	01/05/2019	08/12/2004	174.3	93.5	88.8	14.2	80.8	1.65	14.56	25.6	3522	139.0	1.57	1.92	463	2.54	2.65	2.60	0.68
prop	01/05/2019	05/12/2004	180.3	90.5	74.1	14.2	89.8	1.06	14.56	33.8	3353	146.5	1.98	1.89	392	2.52	2.63	2.58	0.69
Loose Forward	01/05/2019	19/11/2004	173.4	91.7	87.5	14.3	81.7	1.49	14.56	23.8	3353	117.0	1.34	1.98	442	2.56	2.52	2.54	0.56
prop	01/05/2019	17/09/2004	162.8	81.3	77.9	14.3	81.5	0.10	14.56	19.9	2682	84.0	1.08	2.16	361	2.78	2.73	2.76	0.60
Halfback	01/05/2019	14/09/2004	165	79.5	57.5	14.4	85.5	-0.38	14.56	23.7	1988	102.0	1.77	2.06	279	2.58	2.64	2.61	0.55
Centre	01/05/2019	14/09/2004	174.5	86.3	65.0	14.1	88.2	0.38	14.56	44.1	3566	112.0	1.72	1.74	374	2.41	2.42	2.42	0.68
Prop	01/05/2019	13/09/2004	185.5	89.6	84.3	14.5	95.9	1.20	14.56	23.9	3215	123.5	1.47	2.00	422	2.66	2.63	2.65	0.65
Halfback	01/05/2019	21/01/2004	179.5	87.2	70.1	14.7	92.3	0.84	14.56	36.9	3360	112.0	1.60	1.86	377	2.71	2.63	2.67	0.81
2nd Row	28/5/2019	24/1/2004	172.1	88.2	72.1	15.3	83.9	1.35	14.56	40.4	3663	115.0	1.60	1.99	362	2.34	2.45	2.40	0.41
2nd Row	6/2/2019	10/1/2004	175.5	88	93.0	15.1	87.5	1.44	13.6	18.1	3257	126.0	1.35	2.20	423	2.81	2.92	2.87	0.67
Halfback	25/01/2019	21/01/2004	176	84.5	66.3	15.0	91.5	0.59	14.42	36.9	3186	81.0	1.22	1.94	341	2.83	2.51	2.67	0.73
Fullback	31/5/2019	3/9/2004	171.7	83.2	61.0	14.7	88.5	0.25	14.5	32.5	2681	104.0	1.70	1.88	324	2.31	2.38	2.35	0.47
Prop	31/5/2019	3/9/2004	169	84.8	61.9	14.7	84.2	0.49	14.2	31.0	2631	113.0	1.83	1.94	319	2.53	2.52	2.53	0.59
Halfback	31/5/2019	7/9/2004	170.4	87	90.5	14.7	83.4	1.15	13.6	23.5	3471	84.0	0.93	2.03	446	2.64	2.66	2.65	0.62
Forward	31/5/2019	11/9/2004	175	87.4	90.0	14.7	87.6	1.15	13.6	39.7	4432	149.0	1.66	1.77	508	2.54	2.47	2.51	0.74
Hooker	28/5/2019	27/09/2004	166.5	85.7	65.6	14.7	80.8	0.64	14.56	24.5	2404	70.0	1.07	2.02	325	2.39	2.33	2.36	0.34
Forward	5/4/2019	6/8/2004	178	87	95.2	14.7	91	1.12	14.56	24.8	3763	140.0	1.47	2.02	471	2.53	2.61	2.57	0.55
2nd Row	5/4/2019	10/8/2004	174.8	83.5	67.8	14.7	91.3	0.32	14.56	30.5	2868	92.0	1.36	1.84	368	2.57	2.52	2.55	0.71
2nd Row	8/2/2019	22/6/2004	177.9	90.9	72.3	14.6	87.0	1.32	13.3	25.7	2780	96.5	1.33	1.95	371	2.63	2.82	2.73	0.78
2nd Row	31/5/2019	15/10/2004	180.8	85.8	72.4	14.6	95	0.63	14.0	32.5	3197	117.5	1.62	1.88	385	2.66	2.70	2.68	0.80
Prop	28/5/2019	24/10/2004	169	82	84.7	14.6	87	0.37	14.56	22.2	3129	117.0	1.38	2.13	398	2.70	2.62	2.66	0.53
Halfback	3/4/2019	08/09/2004	164.4	85.8	55.1	14.6	78.6	0.47	14.09	29.4	2226	79.0	1.43	1.93	285	2.62	2.66	2.64	0.71
Centre	3/4/2019	11/09/2004	174	88.8	63.8	14.6	85.2	0.92	13.64	27.7	2517	122.5	1.92	1.88	339	2.67	2.67	2.67	0.79
prop	25/01/2019	13/09/2004	183.4	86	84.3	14.5	97.4	0.72	13.74	23.9	3215	118.0	1.40	1.95	432	2.63	2.64	2.64	0.69
prop	5/4/2019	18/9/2004	162	82.7	75.9	14.5	79.3	0.37	14.56	25.8	2949	140.0	1.84	1.92	395	2.78	2.60	2.69	0.77
Wing	31/5/2019	14/11/2004	162.8	79.5	59.4	14.5	83.3	-0.28	14.8	23.6	2068	63.0	1.06	2.14	278	2.55	2.61	2.58	0.44
Prop	20/3/2019	6/9/2004	182	89.3	116.1	14.5	92.7	1.59	12.9	15.5	4145	93.5	0.81	2.68	433	3.27	3.24	3.26	0.58
hooker	31/5/2019	21/11/2004	158	76	62.4	14.5	82	-0.66	15.2	32.3	2732	79.0	1.27	1.98	315	2.49	2.53	2.51	0.53
2nd Row	20/3/2019	11/9/2004	167.5	87	56.8	14.5	80.5	0.61	13.9	32.5	2491	123.0	2.17	1.93	294	3.19	2.88	3.04	1.11
Centre	28/5/2019	22/11/2004	167	78.2	83.4	14.5	88.8	-0.17	14.56	17.9	2810	113.0	1.35	2.17	384	2.63	2.57	2.60	0.43
prop	31/5/2019	25/11/2004	182	88.7	86.6	14.5	93.3	1.13	13.4	23.5	3292	118.0	1.36	2.00	433	2.49	2.52	2.51	0.51
Prop	5/4/2019	02/10/2004	169	83.5	80.5	14.5	85.5	0.47	14.56	24.3	3067	102.0	1.27	1.93	417	2.67	2.57	2.62	0.69
Fullback	22/3/2019	21/09/2004	177.1	84.4	60.0	14.5	92.7	0.25	14.24	32.5	2636	120.0	2.00	1.87	321	2.52	2.52	2.52	0.65
Hooker	20/3/2019	22/9/2004	168.5	86.2	59.0	14.5	82.3	0.52	14.0	21.3	1911	84.5	1.43	2.08	284	3.40	2.64	3.02	0.94
Full Back	5/4/2019	08/10/2004	171.7	82.6	51.5	14.5	89.1	-0.07	14.56	30.6	2135	65.0	1.26	2.01	256	2.74	2.54	2.64	0.63
Scrum Half	20/3/2019	25/9/2004	156.5	80	44.4	14.5	76.5	-0.41	14.9	26.6	1571	69.5	1.57	1.93	230	2.78	2.76	2.77	0.84

	PC1	PC2	TOTAL
Player 1	1.46	1.30	2.76
Player 2	-2.46	-0.83	-3.29
Player 3	-2.71	1.31	-1.40
Player 4	-2.13	1.70	-0.43
Player 5	-0.04	2.58	2.54
Player 6	-0.30	0.32	0.02
Player 7	-2.79	1.94	-0.85
Player 8	-1.08	1.62	0.54
Player 9	2.65	-0.01	2.64
Player 10	2.06	1.17	3.23
Player 11	1.96	0.05	2.01
Player 12	-0.39	-1.75	-2.15
Player 13	-1.61	0.25	-1.36
Player 14	0.97	2.40	3.37
Player 15	2.37	-0.48	1.89
Player 16	1.26	0.18	1.43
Player 17	1.10	2.53	3.62
Player 18	2.18	-2.22	-0.03
Player 19	0.12	-0.18	-0.07
Player 20	-0.36	2.30	1.95
Player 21	-0.40	1.21	0.81
Player 22	1.48	-1.19	0.29
Player 23	3.81	1.44	5.25
Player 24	-1.22	1.06	-0.16
Player 25	3.27	0.14	3.42
Player 26	0.23	0.27	0.50
Player 27	0.55	-1.16	-0.61
Player 28	1.42	-0.13	1.30
Player 29	1.21	-0.59	0.61
Player 30	-1.88	-0.22	-2.10
Player 31	0.13	0.00	0.13
Player 32	2.24	-0.57	1.67
Player 33	0.81	-0.30	0.51
Player 34	-2.25	-0.34	-2.59
Player 35	3.37	-5.04	-1.67
Player 36	-1.45	0.74	-0.71
Player 37	-0.73	-1.80	-2.53
Player 38	0.69	-0.44	0.25
Player 39	2.29	0.34	2.63
Player 40	0.93	-0.65	0.28
Player 41	0.09	1.46	1.55
Player 42	-1.69	-3.17	-4.86
Player 43	-2.08	-0.24	-2.32

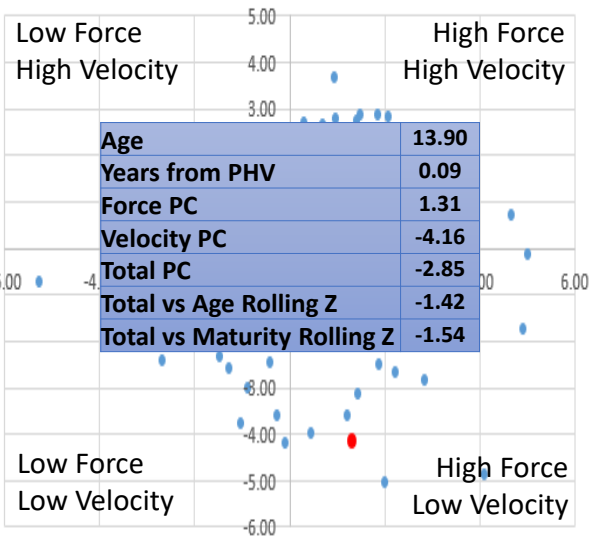
Principal Component Analysis



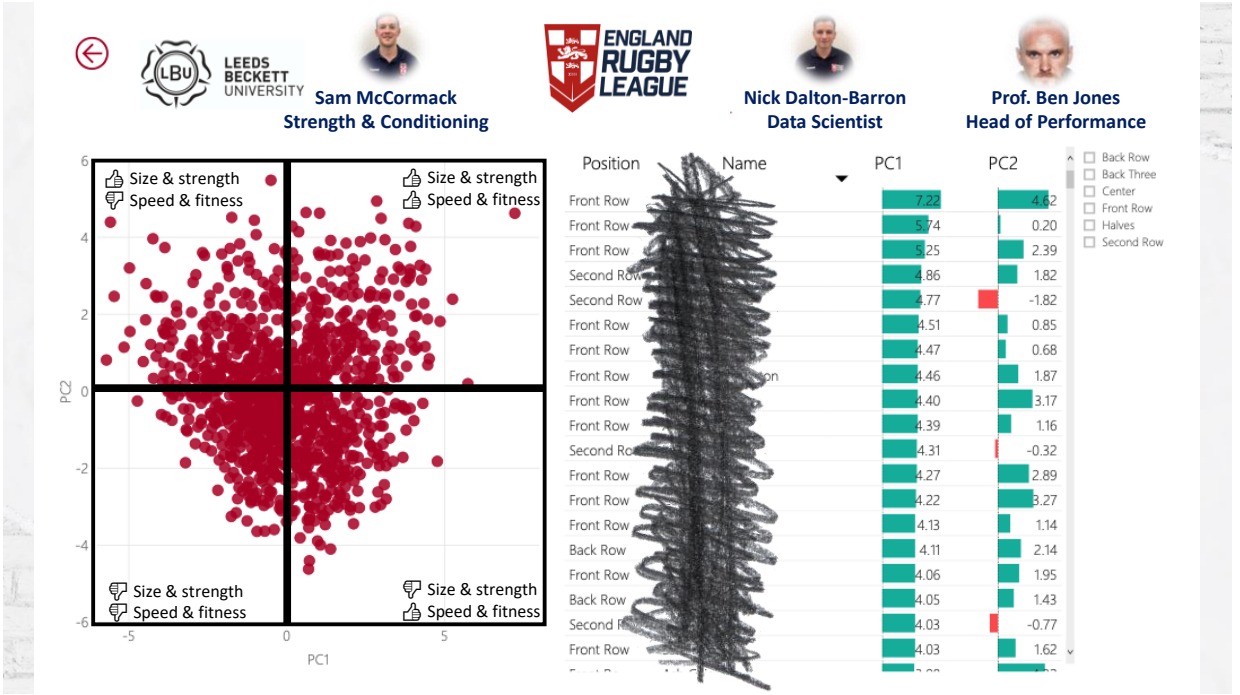
Principal Component Analysis



Age	13.98
Years from PHV	0.94
Force PC	3.67
Velocity PC	2.11
Total PC	5.79
Total vs Age Rolling Z	1.69
Total vs Maturity Rolling Z	0.92



Age	13.90
Years from PHV	0.09
Force PC	1.31
Velocity PC	-4.16
Total PC	-2.85
Total vs Age Rolling Z	-1.42
Total vs Maturity Rolling Z	-1.54



The Goal is Clear…

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INTERNATIONAL OLYMPIC COMMITTEE

'Develop healthy, capable and resilient young athletes, while attaining widespread, inclusive, sustainable and enjoyable participation and success for all levels of individual athletic achievement'

Bergeron et al. (2015) IOC consensus statement on youth athletic development. *Br J Sports Med*, 49, 843-851

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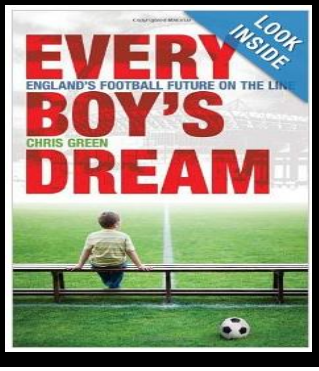
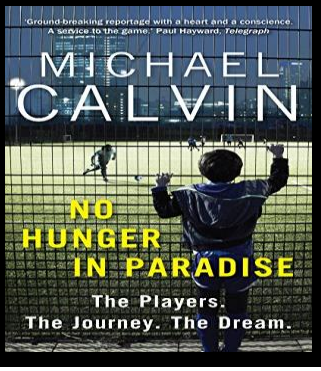
Talent ID & Development Systems (TIDS)

EFFECTIVENESS

= Achieving the intended results

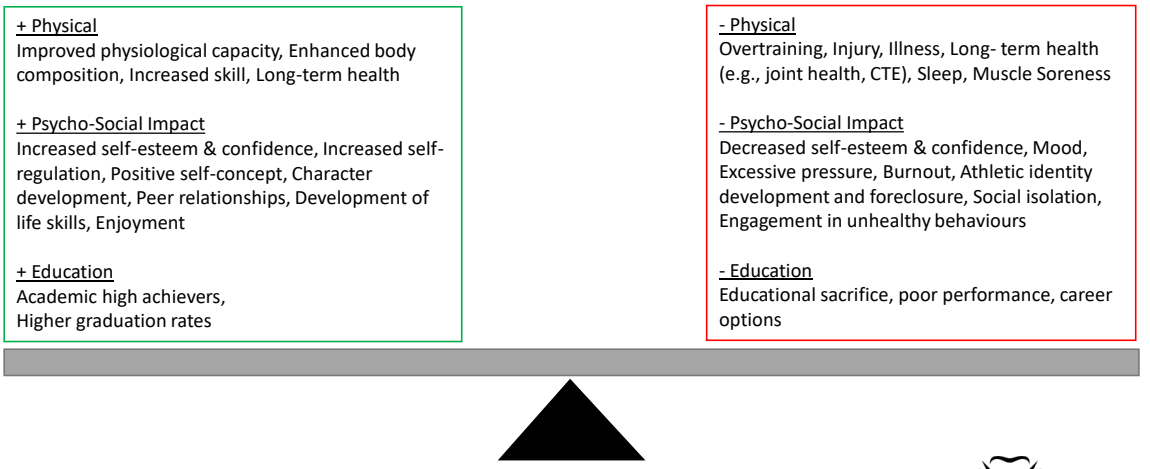





"How we see the world depends on the lens we look through."


Moving Towards…
LOW
MODERATE
IMPACT
HIGH
'have a strong effect on someone or something'

TIDS = Possibility for a Wide Range of Positive & Negative, (Un)Intended, and Short- & Long-term Health Impacts



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Rongen et al. (2014) Talent identification and development: The impact on athlete health? In: Health and elite sport: Is high performance sport a healthy pursuit? New York: Routledge; 2015. p. 33-51.

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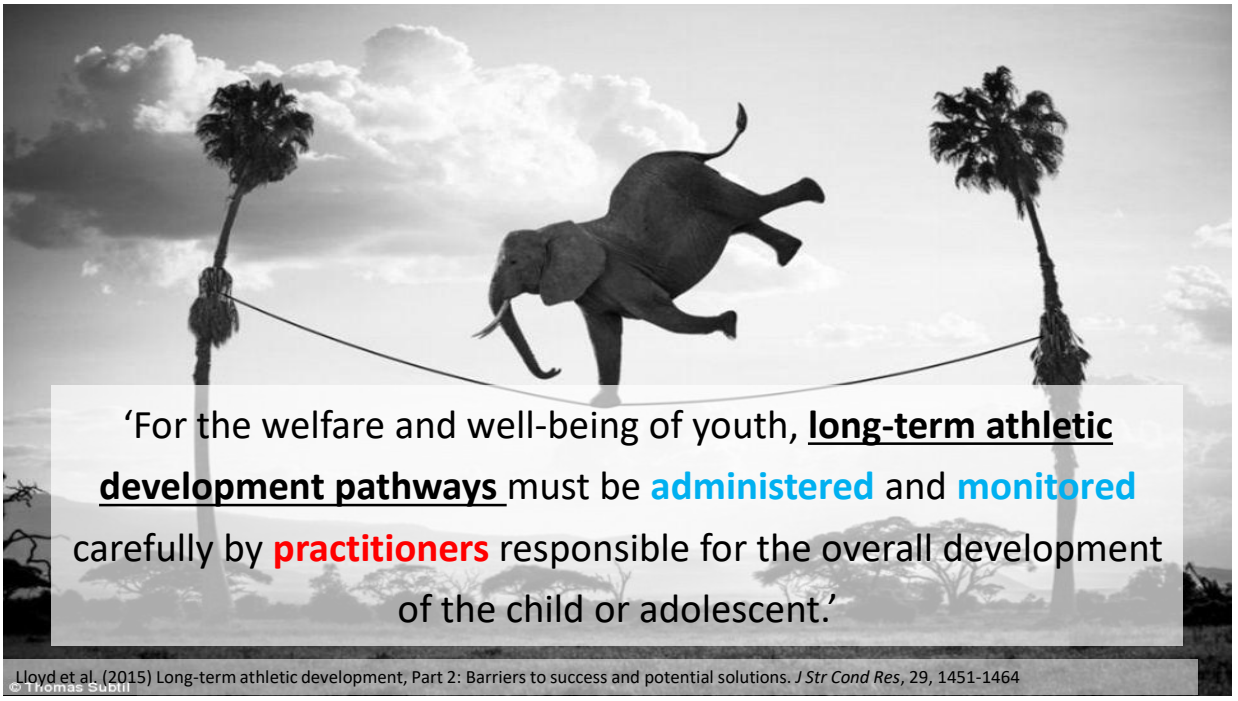
So, are Youth Sport Talent Identification & Development Systems Healthy?

So, are Youth Sport Talent Identification & Development Systems Healthy?

*Talent ID & Development Systems are Neither Inherently **GOOD** or **BAD**. Instead, Their Impact Reflects How Well They Are **Designed, Implemented And Managed** So That Youth Athletes Systematically Secure **Positive Health Outcomes***

Rongen F, et al. (2018) Are youth sport talent identification and development systems necessary and healthy? *Sports Med Open*



Lloyd et al. (2015) Long-term athletic development, Part 2: Barriers to success and potential solutions. *J Str Cond Res*, 29, 1451-1464

How Can We Help?

@KTConditioning

- **Establish** a **Learning** & **Developmental Environment**
- Based upon **Clear Values** & **Expectations** through **Caring** & **Authentic Relationships**
- **Plan** and **Deliver** **Integrative Neuromuscular Programmes**
- **Encourage** a **Sampling of Sports**
- **Support** **Psychological Skill Development**
- **Monitor** your **Athletes** (inc. physical development, well-being, injury load and holistic development)

Monitor, Analyse & Evaluate

Design & Implement

Innovate & Educate

Martindale, et al.. (2007). Effective talent development: the elite coach perspective in UK sport. *J Applied Sport Psychology*, 19(2), 187-206
Lloyd et al. (2015) Long-term athletic development, Part 2: Barriers to success and potential solutions. *J Str Cond Res*, 29, 1451-1464
Bergeron et al. (2015) IOC consensus statement on youth athletic development. *Br J Sports Med*, 49, 843-851
Rongen F, et al. (2018) Are youth sport talent identification and development systems necessary and healthy? *Sports Med Open*

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'Is Complex'

'It's potentially unhealthy'

'It's difficult to measure'

'It's non-linear'

TALENT

Apply Talent Development Principles to EVERYONE for as Long as Possible to Increase The Chances of Success & Health in the Long-Term

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RAMPAGE

A Framework for Enhancing Long-Term Athletic Development

Solution: A RAMPAGE Session

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Section		Description	Physical Qualities	Tech-Tact	Psy-Soc
R	**Raise**	Raise body temperature	Locomotor Skills	***	Observe & Use Coaching Behaviours linked to Session Objective
A	**Activate**	Activate muscles and mobilise the joints	Stability, Mobility & Strength	*	
M	**Mobilise**				
P	**Potentiate**	Increase the intensity of the activity	Speed, Agility, Power	**	
A	**Activity**	Main technical / Tactical activity		*****	
G	**Games**	Focus for implementation of the skill activity within game based situation	Metabolic Conditioning	****	
E	**Evaluate**	Evaluate the session during a cool down	Flexibility, Landing Mechanics	**	

Example Session Plan

@KTConditioning

RAMPAGE: Session Plan

DATE	29.03.2019
SQUAD	U13s
DURATION	1 hour
RUGBY SKILLS (Challenge)	Grip & Carry, Push Support | Challenge = Low
PHYSICAL	Linear Running, Mobility & Stability, Footwork
PYSCHO-SOCIAL	Communication
SESSION OBJECTIVES	1. Perform two hand carry with push support 2. Perform high intensity ball carries with footwork at line 3. Ball carrier and support have communication on attack

Session Section	ACTIVITY	COACHING BEHAVIOURS
Raise (5 mins)	Grip & Carry Lines - Lines of 3 opposite each other - Carry ball and pass on - Perform running, high knees, lateral and backwards	- Technical Cues - 2 handed carry, Grip on ball, Knee drive, tall and forward. Keep hips square, Balls of feet - Actions – Describe Drill, Reiterate 2 handed carry, Get players to talk.
Activate & Mobilise (5 mins)	Body Weight Circuit (30s Each) - BW Squats - Lunges - SL Balance - Jump & Land - Plank - Push Up	Technical Cues: - Feet Flat / Back Straight - Shin and body vertical, 90-90 - Stand Tall, foot flat - Explosive, Land softly - Brace core - Chest to floor, full extension Actions – Demonstrate and Cue

Potentiate (10 mins)	Accelerations / Footwork - 10m accelerations (no ball) x 4 - 15m accelerations (catch ball at 5m) x 4 - 15 m accelerations (catch ball at 5m, footwork on defender at 10m)	Technical Cues - Drive quickly - Drive quickly, 2 handed catch / carry - Drive quickly, 2 handed catch / carry, late footwork Actions – Praise Effort, Encourage Comms
Activity (15 mins)	3 v 2 v 1 - 10m x 20m grid with defenders at 10 & 20 - Attackers aim is to score - Perform from left and right sides - Swap defenders every few repetitions	- Technical Cues - 2 handed ball carry, Attack at pace, Communicate support, Carry / Run ball when available - Actions – Question individuals on outcome of drill (success / failure) based on above
Games (20 mins)	3 x 5 min games (90s rest). All carries from DH pass. Two hand touch. Hit floor and PTB. 6 tackles, no kicks. - Game 1 – 2 handed carry - Game 2 – With push support with pass - Game 3 – Communication Penalties for failing above	- Technical Cues - 2 handed ball carry, Attack at pace, Communicate support, Carry / Run ball when available - Actions – Referee, Let the game play for 5 mins, discuss, Praise and reward key actions, and question in rest period
Evaluate (5 mins)	Key Questions - Why a 2 handed carry? What makes a successful 2 handed carry? - What were the key aspects of the session? Why is communication and support important? Flexibility Stretches	
Coaching Interventions	Praise, Ask questions. Key questions = What worked well / didn't work well? What could you have done better?	

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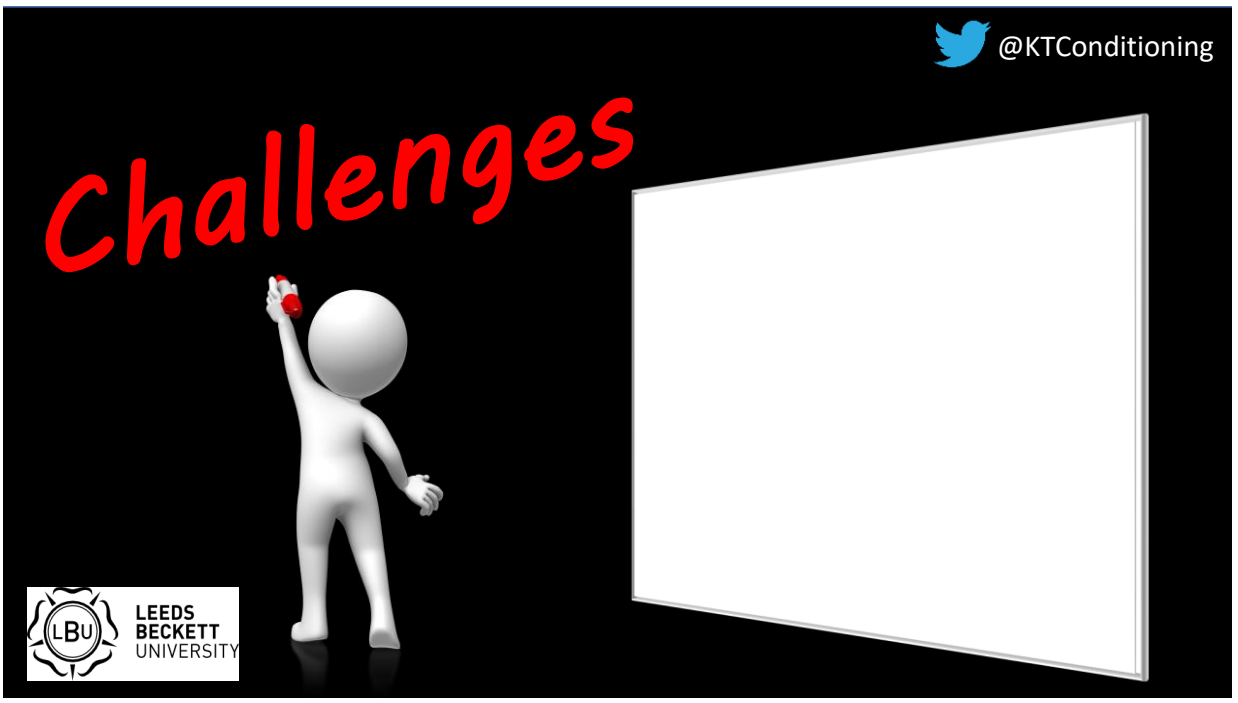

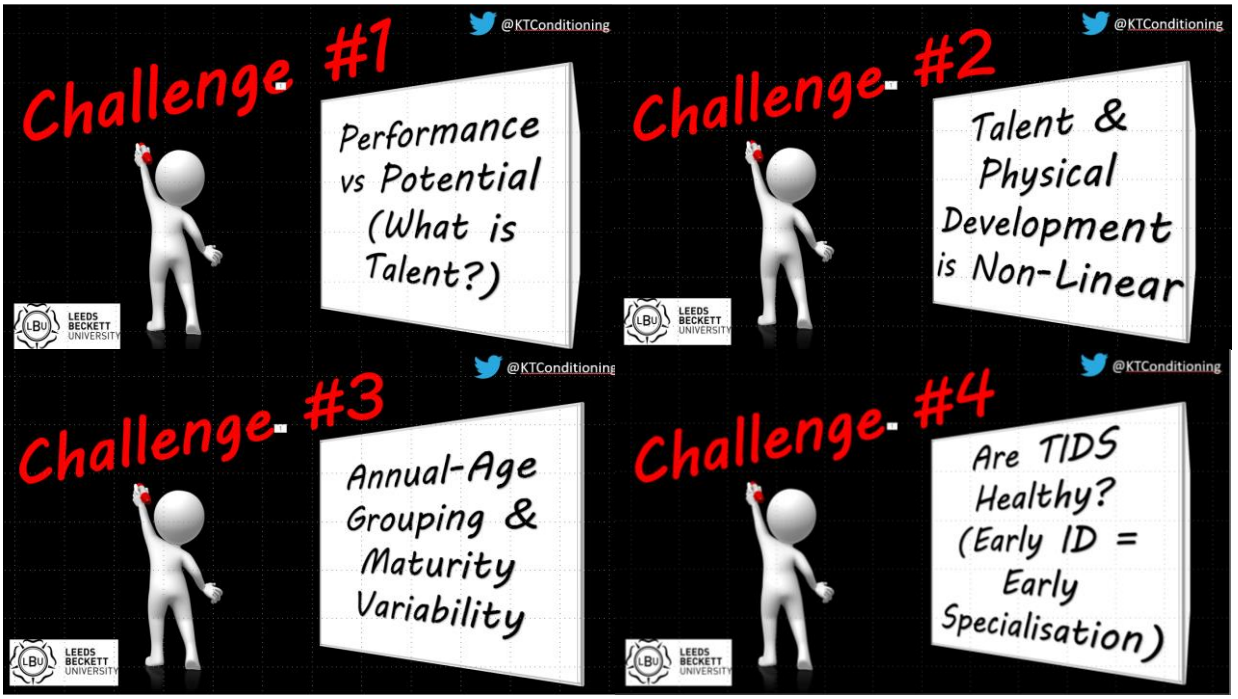
@KTConditioning
Challenge #1
Performance vs Potential (What is Talent?)
@KTConditioning
Challenge #2
Talent & Physical Development is Non-Linear
@KTConditioning
Challenge #3
Annual-Age Grouping & Maturity Variability
@KTConditioning
Challenge #4
Are TIDS Healthy? (Early ID = Early Specialisation)
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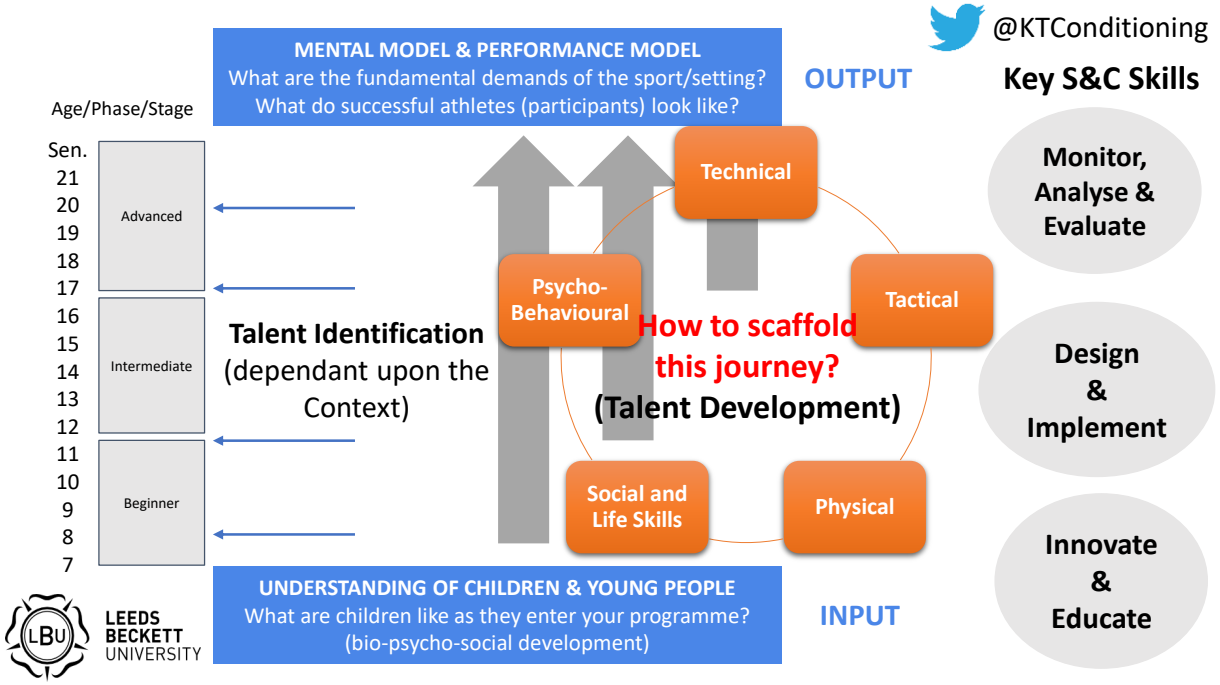
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MENTAL MODEL & PERFORMANCE MODEL
What are the fundamental demands of the sport/setting?
What do successful athletes (participants) look like?
OUTPUT
Key S&C Skills
Age/Phase/Stage
Sen.
21
20
19
18
17
16
15
14
13
12
11
10
9
8
7
Advanced
Intermediate
Beginner
Talent Identification
(dependant upon the Context)
Technical
Psycho-Behavioural
Tactical
How to scaffold this journey?
(Talent Development)
Social and Life Skills
Physical
Monitor, Analyse & Evaluate
Design & Implement
Innovate & Educate
UNDERSTANDING OF CHILDREN & YOUNG PEOPLE
What are children like as they enter your programme?
(bio-psycho-social development)
INPUT
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Understanding Talent:
How Can We Help?

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Thank You!

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Prof. Kevin Till **K.Till@Leedsbeckett.ac.uk** **@KTConditioning**